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ABSTRACT

Reviews of the pertinent literature reveal a lack of consensus as to whether there is an association between sexual abuse history and eating disorders. Therefore, an examination of the relationship between sexual abuse and a bulimic behavior (purging) in a large sample of female adolescents was undertaken. Answers taken from a sample of 8,680 female adolescents and involved 43 middle and high schools in 36 communiuties throughout a Midwestern state, who filled out the Search Institute's Profiles of Student Life: Attitude and Behavior Questionnaire, were used for this research. The results indicate that a relationship does exist between sexual abuse and purging. Moreover, this relationship remained significant even when several other factors were included in the analysis. For example, a significant relationship was found between physical abuse and bulimia. The identification of significant familial and extra-familial factors related to bulimia did not seem to confound the relationship between sexual abuse and bulimia. Ethnicity was also found to be associated with bulimic behaviors. It is noted that these results are limited by the measurement instrument used. Future research is needed to examine what leads to successful coping among female adolescents as not all teens with a history of abuse engage in bulimic behaviors. Contains 26 references. (RJM)

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The Relationship Between Sexual Abuse and a Bulimic Behavior: Findings From Community-Wide Surveys of Female Adolescents

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Running Head: Sexual Abuse and a Bulimic Behavior

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ABSTRACT

A comprehensive review of the literature revealed a lack of consensus among findings about whether or not there is an association between sexual abuse history and eating disorders. Thus, the first objective of this study was to examine the relationship between sexual abuse and a bulimic behavior, namely purging, with a large sample of female adolescents. If sexual abuse was found to significantly related to bulimia, then the second objective of this was to determine if the relation between abuse and the bulimic behavior remained significant when family characteristics and processes were controlled. The third objective of this study was to explore factors that may influence the degree to which sexual abuse is associated with purging. Two different analyses were conducted to address the questions outlined above -- a contingency table Chi square test and a logistic regression analysis.

The results of this study provide evidence that a relationship exists between sexual abuse and the bulimic behavior of purging. Moreover, the relationship between sexual abuse and bulimia remained significant even when several other factors, including physical abuse, where included in the analysis. Several individual (sexual abuse, physical abuse, religiosity, and ethnicity), familial (i.e., family support) and extra-familial (i.e., other adult support) factors were significantly related to the bulimic behavior of purging.

This study explored the relationship between sexual abuse and a bulimic behavior, specifically purging, in a large sample of female adolescents. Currently, there is some controversy in the literature about whether or not a history of sexual abuse is a risk factor for bulimia in adolescence or adulthood (Briere and Elliott, 1994; Connors and Worse, 1993; Pope and Hudson, 1992; Schwartz and Cohn, 1996; Vanderlinden and Vandereycken, 1996). Briere and Elliott (1994) noted that although this is a relatively new area of research, there was some evidence that sexual abuse was associated with bulimic binging and purging but not with anorexia nervosa. Pope and Hudson (1992) conducted a review of the literature on the relation between sexual abuse and bulimia nervosa, and came to the conclusion that "current evidence does not support the hypothesis that childhood sexual abuse is a risk factor for bulimia nervosa" (p. 462). They based this conclusion largely on the evidence from six controlled retrospective studies. Of these studies, four found no significant relationship between sexual abuse and bulimia, and one found a significant relationship but the relation was reduced to nonsignificance when the subjects in the two groups were matched on gender. The sixth study found a significant association between sexual abuse and bulimia, but Pope and Hudson (1992) noted that the control group had an unusually low rate of sexual abuse.

Since Pope and Hudson's (1992) review of literature, several additional studies have examined the relation between sexual abuse and bulimia. The more recent studies have not resolved the issue of whether there is a relation between sexual abuse and bulimia. Some studies have found the expected relation between sexual abuse and bulimia (Andrews, Valentine, and Valentine, 1995; Hastings and Kern, 1994; Miller, McCluskey-Fawcett, and Irving, 1993; Vize, 1995), while others have not (Kinzl, Traweger, Guenther, and Biebl, 1994; Pope Mangweth,

Negrao, Hudson, and Cordas, 1994; Rorty, Yager, and Rossotto, 1994).

Pope and Hudson (1992) noted that many of the studies that examined the relationship between sexual abuse and bulimia had methodological flaws. The way in which the bulimic samples and comparison samples were selected and assessed may account for the inconsistent findings that are reported across studies. Some studies used inappropriate comparison groups; for example, the sample diagnosed with bulimia may largely consist of women, while the comparison sample may include a higher percentage of men. In other studies, the method for assessing sexual abuse was different for the bulimic group that was receiving treatment than for the comparison group which was not in treatment; a more extensive interview regarding sexual abuse history in the bulimic group could uncover more cases of sexual abuse, even though the rate of sexual abuse may not differ from that of the comparison group that received a cursory interview about sexual abuse history.

The over-reliance on clinical samples in the studies that have been conducted thus far appears to be another methodological flaw. The subjects in the study are often involved in treatment for either bulimia or for sexual abuse. However, past research shows that many victims of sexual abuse have never disclosed their sexual abuse to anyone. Based on a survey of a national sample, Finkelhor, Hotaling, Lewis, and Smith (1990) found that 33% of women and 42% of men who were victims of sexual abuse had never disclosed their abuse to anyone. Similarly, it seems unlikely that patients who are in treatment for bulimia are representative of all people who have symptoms of bulimia. Pope and Hudson (1992) suggested another potential problem with using clinical samples. Therapists working in clinical settings may expect to find a relation between sexual abuse and bulimia; cases that confirm their expectation may be salient,

and cases that do not conform to their expectations may be overlooked.

Because there seems to be no consensus about whether or not there is an association between sexual abuse history and eating disorders, the first objective of this study was to examine the relationship between sexual abuse and a bulimic behavior, namely purging, with a large sample of female adolescents. An omnibus survey of adolescents was used for this study; therefore, we can not diagnose cases of bulimia in this sample; clinical interviews by trained clinicians would be required to make such diagnoses. However, the adolescents were asked about the frequency of purging, and we would contend that regularly engaging in purging can not be recognized as benign behavior. Moreover, according to the DSM-IV, binge eating and inappropriate compensatory behaviors both occur, on the average, at least twice a week. The sample available for this study is considerably larger than any of the other studies we found in our review of earlier studies. With the assistance of various school districts, we conducted community wide surveys in diverse communities in one Midwestern state. Nearly all students who were attending school on the day the survey was administered participated in the study. Therefore, the sample for this study is also likely to be more representative of adolescents, in general, than samples drawn from clinical settings. All of the adolescents were asked the same questions about sexual abuse and purging in the same format, and all of the students were assured that their responses would be confidential.

If a relationship between sexual abuse and the bulimic behavior of purging was found, our second objective was to determine if the relation between abuse and the bulimic behavior remained significant when family characteristics and processes were controlled. Kendall-Tackett and her colleagues (1993) noted in their review of the literature that some researchers have raised

the possibility that the relation between sexual abuse and problem outcomes may be explained by some third variable such as general family dysfunction. Past research suggests that both bulimia and sexual abuse are associated with dysfunctional family relationships (Abramsom and Lucido, 1991; Hastings and Kern, 1994; Kinzl et al., 1994; Strober and Humphrey, 1987). Kinzl and his colleagues found that relationship problems between female university students and their parents were associated with eating disorders whereas sexual abuse was not related to eating disorders. They concluded that the eating disorders frequently observed in sexually abused women are due less to sexual abuse per se than to a dysfunctional family background. Therefore, we thought that it would be important to examine the relation between sexual abuse and bulimic behavior of purging while controlling for potentially confounding variables within the limits of the available data. Indicators of family functioning included in this study are the amount of parental support the adolescent perceived she received, and the amount of positive communication between the adolescent and parent(s) as perceived by the adolescent. Also of interest to us was whether these family variables were significant predictors of purging when sexual abuse was controlled.

We also thought it would be useful to examine the separate and combined effects of sexual abuse and physical abuse on purging. Rorty and her colleagues (1994) found that sexual abuse by itself was not predictive of bulimia. Multiple forms of abuse (i.e., combinations of physical abuse, psychological abuse, and sexual abuse) were predictive of bulimia. In addition, women with bulimia were more likely than comparison women to report a history of physical abuse or emotional abuse. They concluded, "Had we examined only sexual abuse, as have most previous reports in the literature on child abuse and eating disorders, we would have missed important contextual aspects of many women's abuse histories" (p. 1125). In contrast to these

results, Andrews and her colleagues (1995) reported significant associations between both physical and sexual abuse and bulimia in their sample, even though the number of bulimics in the sample was quite small.

The third objective of this study was to explore factors that may influence the degree to which sexual abuse is associated with purging. As Briere and Elliott (1994) noted in their recommendations for future research, "Only a second wave of research -- focusing on potential ameliorating or exacerbating variables in the genesis of abuse effects -- can provide a more complete picture of the complexities of childhood sexual victimization and its psychological impacts" (p. 64).

Several factors are likely to influence the degree to which sexual abuse is predictive of problem outcomes among adolescents (Rorty and Yager, 1996). The nature of the abuse is likely to influence the extent to which symptoms are evident. This would include such things as whether or not force was used, who the perpetrator was, how long the abuse occurred, how often the victim was sexually abused, how long ago the abuse occurred, and whether or not the victim experienced sexual abuse alone or other types of abuse also. Of these factors, two are examined in this study. They are how often the victim was sexually abused, and whether or not the victim had a history of physical abuse in addition to the sexual abuse. We expected the risk of exhibiting the bulimic behavior of purging would be greater among victims of sexual abuse who were abused more frequently and who also experienced physical abuse.

The current circumstances of abuse victims are also likely to influence how they are coping with the abuse experience. Adolescents who have been sexually abused are likely to cope better in the aftermath of the abuse experience if they are currently in a supportive family

context; more problems should be evident among adolescent victims who feel that they are receiving little parental support (Luster and Small, in press). Luster and Small reported that adolescents with a history of sexual abuse were less likely to engage in binge drinking and to contemplate suicide if the current family environment was supportive; although a supportive family environment reduced the risk of problem outcomes for both abused and nonabused adolescents, the effects of a positive family environment were generally greater for victims of abuse. Hastings and Kern (1994) found significant main effects for both sexual abuse and family environment in their study of bulimia. However, the interaction between sexual abuse and family environment was not significant.

In this study we attempted to determined if the relationship between sexual abuse and purging behavior varies as a function of current parental support and parent-adolescent communication based. We also tested the hypothesis that adolescents who have been victims of abuse can also benefit from having a close relationship with a nonparental adult. As Werner and Smith (1982) noted in their study of resilient adolescents, often an adult outside the family helped adolescents to feel a sense of coherence and optimism in an otherwise troubled environment. These adults may be teachers, counselors, coaches, neighbors, employers, or grandparents. Another institution that may help a victim of sexual abuse find comfort and direction is organized religion. We expected victims of abuse who were involved in religion to show fewer symptoms of bulimia than adolescents who did not have a religious affiliation as a potential source of support.

To summarize, three questions were addressed in this study. The first question was, is there an association between sexual abuse and purging among female adolescents?

Second, is a history of sexual abuse predictive of purging when characteristics of the teen's family (e.g., parental support) are controlled? Third, assuming that there is a relation between sexual abuse and purging, what factors increase or decrease the likelihood that victims of sexual abuse will exhibit symptoms of bulimia? In this study we explore the possibility that several variables may function as moderator variables, influencing the strength of the relation between sexual abuse and purging behaviors. We expected the following factors would reduce the risk of purging among victims of sexual abuse: (1) current parental support, (2) parent-adolescent communication, (3) support from another adult [i.e., other than a parent], and (4) involvement in religion. We expected the risk to be greater if the teens had a history of physical abuse in addition to having experienced sexual abuse. Also of interest is how often the teens experienced sexual abuse. Teens who experienced sexual abuse more frequently were expected to be at greater risk for exhibiting purging behavior, the bulimic behavior measured in this study.

Method

Participants

A sample of 8,680 female adolescents was drawn from a large Midwestern state (Keith and Perkins, 1995). The sample employed here is all adolescent females who participated in the a study of 16,375 adolescents, ages 12-17 years old (see Table 1). This study involved 43 middle and high schools in 36 communities throughout a Midwestern state. Public schools participation was solicited at the school or district level by one of three people: the county 4-H extension agent, the county Extension Family and Consumer agent or project staff. All students at each school participated unless they were absent or refused to participate in the study (see Keith and Perkins, 1995 for a comprehensive description of the larger sample).

Insert Table 1 about here

Data were collected via self-report surveys administered by classroom teachers, in either Fall, 1993, or Winter, 1994. The primary purpose of the surveys was to provide communities with information that could be used to influence policy and to educate school administrators, local policy makers, parents, youth, and other members of the community about the attitudes and behaviors of local youth.

Measures

All participants in this study were administered the Search Institute's Profiles of Student Life: Attitude and Behavior Questionnaire (ABQ), a 152-item inventory developed by the Search Institute (Benson, 1990; Blyth, 1993). Several potential related factors were identified in a comprehensive review of the literature regarding bulimia from the larger set of variables measured in the study. Those factors are presented below.

Bulimic behavior. In this investigation, purging is the bulimic behavior measured by one item on the ABQ. The item asked respondents, "How often do you vomit (throw up) on purpose after eating?" The range of responses were '1' (never), '2' (once a month or less), '3' (2-3 times a month), '4' (once a week), '5' (2 or more times a week). As defined by the DSM-IV, binge eating and inappropriate compensatory behaviors both occur, on the average, at least twice a week. For this investigation participants whose response was '5' were consider bulimic through purging behaviors.

Age. In this investigation, age was scored as a continuous variable. The range of ages in

this sample were from 12 through 17 years old with a mean age was 14.4 years (SD=1.55).

Ethnicity. Ethnicity was measured as a five level categorical variable. The categories were, '1' (American Indian), '2'(Asian or Pacific Islander), '3' (Black or African American), '4' (Hispanic), and '5" (White). Ethnic/racial minorities (that is categories 1 to 4) comprised 31.1% of the sample. As noted above, African American were the largest minority group of adolescents sampled in this study, comprising 24.6% of this sample. Native American adolescents (3.6%), Hispanic or Latino adolescents (2.5%), and Asian or Pacific Islander adolescents (.9%) were also represented in this sample. European American adolescents comprised the majority of the sample (66.4%). Finally, 1.9% of the sample left the ethnic identification question blank; these responses were treated as missing data.

Sexual Abuse. Sexual abuse was measured by one item, "Have you ever been sexually abused?" The range of choices was '1' (never), '2' (once), '3' (2-3 times), '4' (4 - 10 times), and '5' (more than 10 times).

Physical Abuse. Physical abuse was measured by one item, "Have you ever been physically abused by an adult (that is, where an adult caused you to have a scar, black and blue marks, welts, bleeding, or a broken bone)?" The range of choices was '1' (never), '2' (once), '3' (2-3 times), '4' (4 - 10 times), and '5' (more than 10 times).

Religiosity. Adolescents' religiosity was indexed by three items regarding their attendance at religious services and their views on the importance of religion in their lives. The first two items concerned actual involvement in church activities and services (e.g., "How often do you attend religious services at a church or synagogue?"). The range of choices was '1' (never) to '4' (about once a week). The third item asked the adolescents about their view of religion: "How important is religion in your life?" For this item, there were four possible

responses ranging from '1' (Not important) to '4' (Very important). The three items were standardized before being summed together. In this sample, the Cronbach alpha for religiosity was .72.

Family support. Adolescents' reports of family support was derived from a five-item scale on the ABQ. These items were: "My family life is happy," "There is a lot of love in my family," "I get along well with my parents," "My parents help me and give me support when I need it," and "My parents often tell me they love me." All of the items from this scale were scored on a five point Likert scale with responses ranging from '1' (strongly disagree) through '5' (strongly agree). The mean of the responses of the items was calculated after the scores had been standardized. The items were reversed in scoring so that high scores were representative of positive parental support. The Cronbach alpha for this scale was .83.

Parent-adolescent communication. The communication between parents and adolescents was assessed by four items from the ABQ. Two of the items were scored using a five-point Likert scale where '1' (strongly agree) and '5' (strongly disagree). Items were: "I have lots of good conversations with my parents" and "My parents are easy to talk with." The third item was, "If you had an important concern about drugs, alcohol, sex, or some serious issues, would you talk to your parent(s) about it?" The five-point scale was '1' (Yes), '2' (Probably), '3' (I'm not sure), '4' (Probably not), and '5' (No). The fourth item in the scale differed in format from the other three. The item asked, "How many times in the last month have you had a good conversation with one of your parents that lasted 10 minutes or more?" The choices ranged from '1' (none) to '5' (4 or more times). The mean of the responses of the items was calculated after the scores had been standardized. The first three items were reversed in scoring so that high scores were representative of positive parent-adolescent communication. In this sample, the

Cronbach Alpha for parental communication was .81.

Other Adult Support. Adolescent's perceived support from other adults besides their parent was assessed by two items from the ABQ. Items were: "How many times in the last month have you had a good conversations with an adult (not a parent) that lasted 10 minutes" and "If you had an important question about your life, how many adults do you know (not counting your parents) to whom you would feel comfortable going for help." The range of choices for the former question was '1' (never), '2' (once), '3' (twice), '4' (3 times), and '5' (4 or more times). The range of responses for the latter question were '1' (none), '2' (1), '3' (2), '4' (3 to 4), and '5' (5 or more). The item response were added to create a single index of other adult support. In this sample, the Cronbach Alpha for other adult support was .52.

Procedure

Data collection involved group testing in each of the participating schools. Teachers administered the questionnaire by following a specific script and an instruction manual from the Search Institute. In a classroom setting, all of the participants, within their respective schools, were administered the questionnaire during one specific time during the school day.

The survey was administered to participants with the assurance of anonymity. Each school determined if written consent or passive consent of parents was required before students could participate in the survey. Passive consent of parents was employed by the schools from which this sample is drawn. A child could participate in this study unless parents indicated that their child was not allowed to participate. In addition, verbal consent was received from each student, who was informed about the precise nature of the study. Students were told their responses were completely anonymous, that their participation was completely voluntary, and that they could withdraw from the study at any time without penalty. Moreover, students were

told that after all the questionnaires were completed, their teacher would seal the envelope which contained the questionnaires in front of the students; this procedure was intended to provide some concrete assurance of anonymity.

Results

Two different analyses were conducted to address the questions outlined above. First, a contingency table Chi square test was conducted to examine the relationship between sexual abuse and the bulimic behavior of purging. Second, a logistic regression analysis was conducted to examine the effect of sexual abuse on a bulimic behavior (extreme purging and not extreme purging) after controlling for other factors. The logistic regression was used to identify the factors related to females engagement in purging.

Contingency Table Chi square test

To address whether an association exists between sexual abuse history and bulimic behavior, a contingency table Chi square test is employed because both sexual abuse and the bulimic behavior are ordinal variables. An asymptotic test (non-zero correlation) for the significance of the Chi square is used because of the large sample size. A cross tabulation of sexual abuse versus bulimia is present in Table 2. The association between sexual abuse and bulimic behavior was found to be significant ($\chi^2 = 119.8$, $df = 1$, $p < .001$). In general, the number of females engaged in a bulimic behavior increases as the reported frequency of sexual abuse increases.

Insert Table 2 about here

Another abuse, physical abuse, was also found to be significantly associated with the

bulimic behavior ($\chi^2 = 247.8$, df = 1, p <.001). This may be due to the fact that sexual abuse and physical abuse are themselves highly associated ($\chi^2 = 899.9$, df = 1, p <.001). Given the significance of these relationships (e.g., sexual abuse and bulimia; physical abuse and bulimia; and sexual abuse and physical abuse) a three-way contingency table analysis test was employed to examine the amount of joint association that existed. This analysis is based on log-linear models of higher order association (Sokal and Rohlf, 1981). The test found that there are pairwise associations between sexual abuse, physical abuse, and bulimia but no joint associations between the three factors considered simultaneously (see Table 3). Thus, the association between bulimia and sexual abuse does depend on the degree of reported physical abuse, nor does the association between bulimia and physical abuse depend on the degree of reported sexual abuse.

Insert Table 3 about here

Logistic Regression Analyses. Logistic regression was employed to examine the effect of sexual abuse on the bulimic behavior of purging after controlling for other factors. Similar in form to normal theory linear regression, logistic regression is most appropriate for binary and polytomous responses (Afifi and Clark, 1984; Tabachnick and Fidell, 1989). This analysis also identifies factors that are predictive of the bulimic behavior. Predictor variables were entered simultaneously (see Table 4).

Insert Table 4 about here

Six variables predicted the bulimic behavior of purging among adolescent females in the logistic analysis: Sexual abuse, physical abuse, family support, other adult relationship, religiosity, and ethnicity. Two variables were not found to be significant in the logistic analysis: age and parental communication. The model $\chi^2 = 121.61$ ($df = 11$, $p < .0001$).

The results of these analyses showed that sexual abuse effects the bulimic behavior of purging when characteristics of the teen's ecology are controlled. Moreover, the results also provide evidence in support of several other factors within the teens ecology that are significantly related females exhibiting the bulimic behavior of purging.

Discussion

The results of this study provide evidence that a relationship exists between sexual abuse and the bulimic behavior of purging. This finding concurs with other scholars who have found a similar relationship among samples of clinical patients (Miller et al., 1993; Rorty et al., 1994). Moreover, the relationship between sexual abuse and bulimia remained significant even when several other factors where included in the analysis. For example, a significant relationship was found between physical abuse and bulimia; however, there was not a significant combined effect (or a joint association) between sexual abuse and bulimia with physical abuse and bulimia. Thus, both types abuse seems to be independently associated with bulimia. The result of independent association concurrs with findings of Andrews et al. (1995) who reported significant associations between both physical and sexual abuse and bulimia in their sample.

The identification of significant familial (i.e., family support) and extra-familial (i.e., other adult support) factors related to bulimia did not seem to confound the relationship between sexual abuse and bulimia. For instance, the finding that both sexual abuse and family support were significant predictors in the logistic regression is indicative of each factor's separate role in

predicting bulimia. This result is contrary to Kendall-Tackett's and her colleague's (1993) finding that the relationship between sexual abuse and bulimia may be explained by family dysfunction. In their review of literature, Kendall-Tackett et al. (1993) noted several studies that found an association among sexual abuse and physical abuse with general family dysfunction. It is important to note that family support was significantly related to the bulimic behavior such that as reported family support increased the likelihood of exhibiting the bulimic behavior decreased. This finding provides evidence of the importance of family functioning as perceived through family support with regard to female bulimic behavior.

Ethnicity was found to be associated with females engagement in bulimic behaviors. The results of the logistic regression indicate that being Latino is related to an increase likelihood of exhibiting the bulimic behavior of purging. However, this particular result must be taken with extreme caution because Latinos were a very small proportion of the overall sample.

The generalizations about the findings of this study must be tempered by recognition of the limitations of the present work. First, the present findings are limited to the measurement model and to the measurement instrument that was employed. For example, bulimia was measured from a single item regarding purging behavior. Therefore, we could not determine if the subjects who were engaging in these behaviors would be classified as having bulimia nervosa. A clinical evaluation would be necessary for such a diagnosis to be determined. Similarly, only a single item measure of sexual abuse was available. It would have been useful to have additional information about the abuse experience including who the perpetrator was, if forced was used, the age at which the abuse occurred, and the recency and duration of the sexual abuse experience. Information about the abuse history and current family circumstances from an additional source would have been valuable for this investigation, but it would not be practical to

collect such information in large scale surveys like the ones used for this study. All of these factors could influence the strength to which the adolescents were symptomatic. Moreover, the item on purging would not detect cases in which an adolescent had bulimic symptoms at an earlier time but the bulimia was in remission. This could lead to an underestimation of the relation between sexual abuse and bulimic behaviors.

The second limitation was that the determination of causal relations is not possible because the correlational analyses were conducted with cross-sectional data. In addition, because cross-sectional data were employed, often more than one interpretation of the data is possible. The third limitation was that this investigation only included a subset of the variables that may play a role in female adolescents' engagement in bulimic behaviors.

In conclusion, the data from this study showed a very clear relationship between sexual abuse and the bulimic behavior of purging. Unlike most earlier studies that focused on clinical samples, this study drew from a large "normal" sample of female adolescents. Future research is needed to examine what leads to successful coping among female adolescents because some abused adolescents are not engaging in bulimic behaviors. Thus, while sexual abuse is associated with an increased likelihood of purging, the results also indicate that bulimia is not inevitable. The identification of significant predictors of bulimia at the individual, familial, and extra-familial levels suggests the importance of examining multiple levels of the teen's ecology for factors that enable to the adolescent to cope and not engage in bulimic behaviors. Clearly, more comprehensive research is needed to examine the role and effects of multilevel ecological factors on female adolescents engagement in bulimic behaviors.

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Table 1.
Sample Characteristics

	Sample Size	Percent of Total Sample
Total	8,680	100
Age		
12	1,084	12.5
13	1,642	18.9
14	1,867	21.5
15	1,575	18.1
16	1,498	17.3
17	1,014	11.7
Race/Ethnicity		
Asian or Pacific Islander	80	00.9
African American	2,136	25.1
European American	5,767	67.7
Hispanic or Latino	221	02.6
Native American	314	03.7

Table 2.
Contingency Table of Bulimia by Sexual Abuse

	Sexual Abuse				
	Never	Once	2-3 Times	4-10 Times	>10 Times
Not Bulimic*					
Frequency	6,603	923	476	156	184
Percentage	98.2%	97.9%	96.0%	94.0%	91.5%
Bulimic					
Frequency	119	20	20	10	17
Percentage	1.8%	2.1%	4.0%	6.0%	8.5%

$\chi^2 = 119.8$, df = 1, p <.001

*Purging occurred at this level but not at the levels necessary to be defined bulimic behavior (DSM-IV defined binge eating occurring, on the average, at least twice a week).

Table 3.
Results From a Three-way Contingency Table Analysis Among Bulimic Behaviors

Variable	df (N = 8,514)	Chi-Square	Probability
Bulimia	4	1,306.00	.0001
Sexual Abuse	4	439.60	.0001
Bulimia * Sexual Abuse	16	67.41	.0001
Physical Abuse	4	215.93	.0001
Bulimia * Physical Abuse	16	195.95	.0001
Sexual Abuse * Physical Abuse	16	760.58	.0001
Likelihood Ratio	53	54.62	.4128

Table 4. Logistic Regression Analyses

Variables	β	SE	Wald	df	*p*	Exp
Age	-.04	.05	.55	1	.4492	.96
Ethnicity*			15.19	4	.0043**	.90
Sexual Abuse	.22	.07	11.56	1	.0007**	1.27
Physical Abuse	.22	.06	11.52	1	.0007**	1.23
Family Support	-.38	.13	8.89	1	.0029**	.68
Parent-Adolescent Communication	-.15	.16	.84	1	.3593	.85
Other Adult Support	.11	.04	7.65	1	.0057**	1.12
Religiosity	-.23	.09	6.32	1	.0120**	.76

($\chi^2 = 121.605$, df = 11, $p < .0001$)

* Nominal level

** $p < .05$